**United States Department of Agriculture**
**Natural Resources Conservation Service**

# Water Quality Enhancement Activity – Sediment Management

**Sediment Management**
Sediment management decisions have a significant influence on soil productivity, public drinking water, aquatic species and irrigation operations through the erosion, transport and deposition of soil particles by water. Enhancement activities associated with sediment management can improve water quality, and protect the agricultural lands that depend upon productive soils.

**Benefits**
Increased management of sediment will protect and enhance water quality and the biotic communities that depend upon clean lakes and rivers. Additionally, soil particles will stay in place on agricultural fields and contribute to soil quality and productivity. Healthy streams and riparian areas are also critical in meeting the life history needs of many wildlife species. Application of proper sediment management will result in observable reductions in sediment loss from a variety of surfaces, including roads, tilled fields, rangelands, agro-forestry, orchards and vineyards, and confined and open animal facilities.

**Criteria for Sediment Management Enhancement Activity**
This enhancement requires a participant to initiate or maintain **all of the activities that are applicable to all enterprises and two or more** of the following activities that relate to their operation/enterprise. These activities are intended to be in addition to activities implemented to meet Quality Criteria for water quality resource concerns.

**I. Activities applicable to all enterprises:**

1. Erosion is controlled in the concentrated flow areas; no signs of rill or gully erosion exist

2. Conservation measures such as contouring, strip cropping, terraces and windbreaks are maintained

3. Perennial streams, ponds and lakes are bordered with vegetated buffers at least 75 feet wide

**II. Activities applicable primarily to cropping enterprises:**

1. Annual crops established using no tillage with at least 45% residue remaining after planting

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2. At least 45% soil cover remains after planting from crop residue, green manure, compost or other mulch

3. Cover Crops are utilized after annual crop and not harvested or permanent vegetation is established between rows such as orchards and vineyards

4. More than 75% of operation is in no till agriculture

5. Fall tillage is not employed

**III. Activities applicable primarily to range and forest enterprises:**

1. More than 50% of the rotation is in perennial forage

**Reference:**

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G.W. Langdale, A.P. Barnett, R.A. Leonard, W.G. Fleming. 1979. Reduction of Soil Erosion by the No-Till System in the Southern Piedmont. Transactions of the American Society of Agricultural Engineers 22 (1).

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K.W. King, D.C. Flanagan, L.D. Norton, J.M. Laflen. 1995. Rill erodibilty parameters influenced by long-term management practices. Transactions of the ASAE 38 (1) 159-164.

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## I. Activities applicable to all enterprises

1. **Erosion is controlled in the concentrated flow areas; no signs of rill or gully erosion exist**

   The movement of soil particles carried by water occurs naturally, but can be accelerated on agricultural operations by a multitude of farm activities. Conservation measures can be employed to reduce erosion and keep soil from being transported to streams and lakes. Participation in the CSP is dependent upon addressing water quality resource issues and documenting them through the Water Quality Eligibility Tool. Enhancement payments for sediment reduction are reserved for producers that are employing conservation measures well above the minimum eligibility requirements for participation.

   - Attach receipt showing payment for application of conservation measures or consultation services that reduce erosion or certification of self-application
   - Provide photo verification of concentrated flow areas with no signs of rill or gully erosion
   - Briefly describe your erosion control measures and your evaluation of its effectiveness

2. **Conservation measures such as contouring, strip cropping, terraces and windbreaks are maintained**

   Conservation measures can lose their effectiveness over time if not maintained. Operations which require trips across a field may be combined to reduce the total number of field trips, reducing potential particulate matter generation from field trips. Nutrients and pesticides could be applied simultaneously. Multi-tillage tools can conduct multiple types of tillage on one pass across the field.

   - Provide documentation of the reduction in the number of trips across a field for a year
   - Provide photographic evidence of the implements which combine operations

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3. **Perennial streams, ponds and lakes are bordered with vegetated buffers at least 75 feet wide**

   Vegetated strips bordering streams and water bodies provide one of the most effective filtering mechanisms for sediment. The buffers enhance water quality by not only filtering out sediment but agro-chemicals and nutrients as well. To qualify for the enhancement buffers need to be at least 75 feet wide on each side of a stream or river and 50 feet wide for lakes and ponds.

   - Provide certification or photographic evidence of the installed buffer
   - Briefly describe your buffer system, include width, vegetative species and information on the stream or water-body being buffered.

## II. Activities applicable primarily to cropping enterprises

1. **Annual crops established using no tillage with at least 45% residue remaining after planting**

   Vegetative cover and residues provide protection at the soil surface to the erosive forces of water especially on fields with steep slopes. These residues intercept the surface flow of water and slow its movement. In doing this, the ability of the water to transport sediment is reduced and suspended soil particles are not transported to waterways.

   - Attach certification that your conservation tillage system meets the requirement of providing for 45% residue cover over the soil surface at planting
   - Briefly describe your tillage and planting system and your evaluation of its effectiveness

2. **At least 45% soil cover remains after planting from crop residue, green manure, compost or other mulch**

   Vegetative cover, green manure, compost or mulch residues provide protection at the soil surface to the erosive forces of water especially on fields with steep slopes. These residues intercept the surface flow of water and slow its movement. In doing this, the ability of the water to transport sediment is reduced and suspended soil particles are not transported to waterways.

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- Attach certification that your conservation tillage system meets the requirement of providing for 45% residue, manure, compost or mulch cover over the soil surface at planting
- Briefly describe your mulching and/or planting system and your evaluation of its effectiveness.

3. **Cover Crops are utilized after annual crop and not harvested or permanent vegetation is established between rows such as orchards and vineyards**

   Cover crops provide vegetative structure to protect soil resources at times when annual crops are not being grown. Likewise permanent vegetation can be used between rows in orchards and vineyards to reduce erosion and subsequent sediment transport to water bodies. To meet CSP eligibility, cover crops can be used on the operation. To meet the requirements of the enhancement, all fields, orchards and/or vineyards must employ cover crops.

   - Attach certification or photographic evidence of cover crops during non-cropping periods.
   - Briefly describe your cover crop system and rotation and discuss its effectiveness.

4. **More than 75% of operation is in no till agriculture**

   Vegetative cover and residues provide protection at the soil surface to the erosive forces of water especially on fields with steep slopes. These residues intercept the surface flow of water and slow its movement. In doing this, the ability of the water to transport sediment is reduced and suspended soil particles are not transported to waterways.

   - Attach certification that your conservation tillage system is utilized on 75% of your operation.
   - Briefly describe your tillage and planting system and your evaluation of its effectiveness.

5. Fall tillage is not employed

   Fall tillage exposes soil to weather conditions from the time of tillage until planting (either in the fall or spring). Minimizing the exposed soil to precipitation also minimizes the potential for sedimentation and the transport of soil particles to water bodies.

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- Attach certification that fall tillage is not employed on your operation.
- Briefly describe your tillage and planting system and your evaluation of its effectiveness.

## III. Activities applicable primarily to range and forest enterprises

### 1. More than 50% of the rotation is in perennial forage

Primarily in range, forest and silvo-pasture areas, it is important to maintain a majority of the rotation in a vegetated state and specifically in perennial forage. This provides vegetative interception of precipitation and provides structure to slow overland flow.

- Provide certification or photographic evidence of perennial forage on fields or operation.
- Briefly describe your forage plan and your evaluation of its effectiveness.